



ITT Industries

Advanced Engineering  
& Sciences

5009 Centennial Boulevard #80919  
PO Box 39550  
Colorado Springs, CO 80949-9550  
tel. 719 599 1500  
fax. 719 599 1947

SACROS 207940 0000

# RELIABLE REPLACEMENT WARHEAD PROJECT OFFICERS GROUP KICKOFF MEETING (U)

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MINUTES OF THE RELIABLE REPLACEMENT WARHEAD  
PROJECT OFFICERS GROUP KICKOFF MEETING (U)  
ITT AES, Arlington, VA  
11 May 05

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(This List of Appendices is UNCLASSIFIED)

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1.0 (U) GENERAL BUSINESS

1.1 (U) ADMINISTRATIVE REMARKS

(U) [redacted] <sup>(b)(6)</sup> provided administrative remarks regarding the facility as well as security.   
*Privacy Act 1974*

1.2 (U) OPENING REMARKS

*(b)(6)* (U) [redacted] welcomed everyone to the kick-off meeting for the Reliable Replacement Warhead (RRW) Project Officers Group (POG) and acknowledged [redacted] for his efforts in getting the Terms of Reference (TOR) established. [redacted] also recognized [redacted].   
*(b)(6)* *(b)(6)* *Privacy Act 1974* *(b)(6)*

(U) [redacted] <sup>(b)(6)</sup> presented the agenda which is included as Appendix A. The List of Attendees is attached as Appendix B. An organization chart is attached as Appendix C.   
*Privacy Act 1974*

1.3 (U) BACKGROUND, TERMS OF REFERENCE, GOALS & OBJECTIVES, POG MEMBERSHIP & SCHEDULE

*Privacy Act 1974* (U) [redacted] <sup>(b)(6)</sup> presented an overview which included RRW background, Terms of Reference (TOR), goals and objectives of the study, POG membership, and schedule. A copy of his briefing is included as Appendix D. [redacted] discussed the competition for the RRW design. The POG agreed that this will be a true competition between Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL) and will result in getting the best individual engineering effort from each laboratory team. The laboratories' designs will be developed independently and reviewed separately to ensure that data is protected as required for proprietary information. The selected design will then be subject to peer review.   
*(b)(6)* *Privacy Act 1974*

Privacy Act 1974

(b)(6)

(U) [redacted] stated that the starting point for the Navy is the MK5 aeroshell with a MK4A Arming, Fuzing & Firing (AF&F) system. He mentioned that there is a significant inventory of MK5 aeroshells. He made it very clear that there will be no changes to the MK5/D5 missile interface and that the MK4A AF&F will be used as is. [redacted] also commented that he believes that the W78 is the only other existing Nuclear Explosive Package (NEP) that will fit in the MK5 shell. This sparked discussion on what makes up a "new" design. There is significant political resistance to anything perceived as "new". [redacted] took an action, in conjunction with [redacted] to provide clarification on what constitutes a new design at the next POG. Regardless, [redacted] added that we should not be too quick to dismiss a design simply because it may be perceived as new. He believes that Congress wants to look at all the options and select the "right" approach despite some appearance of being new.

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(b)(6) Privacy Act 1974

~~(S)~~ (U) [redacted] (b)(6) Privacy Act 1974 expressed that he is very encouraged about the RRW POG due to the potential

benefits to the stockpile and the related infrastructure. He explained that the National Nuclear Security Administration (NNSA), USSTRATCOM and the Services are part of the design down-select process because of the impact to the overall force structure. [redacted] challenged the group to look for opportunities to speed up the process. The POG was given 18 months to complete the study but perhaps it could be done faster. A First Production Unit (FPU) for RRW has been set for 2012 - perhaps it could be sooner. [redacted] said that USSTRATCOM should be involved as much as possible and should play a significant role in defining requirements. [redacted]

(b)(6) Privacy Act 1974

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1.4 (a) (e)(9)

Finally, [redacted] remarked that verification and inventory process improvements should be considered if possible.

(b)(6) Privacy Act 1974

(b)(6) Privacy Act 1974

(U) [redacted] also provided general comments at this point. He believes that the Department of Defense (DOD) and NNSA are very well aligned on the objectives. He stated that the POG was created because the Nuclear Weapons Council (NWC) recognizes that it is vital to address the sustainment of the NNSA infrastructure. [redacted] committed to applying the resources needed for this task. However, finding the funding will be a difficult challenge. The support of USSTRATCOM and the Services will be helpful in obtaining Congressional

(b)(6) Privacy Act 1974

(b)(6) Privacy Act 1974

(U) support. [redacted] also commented on the increasing importance of security for nuclear weapons. Preventing loss and recovery at all costs has been done very well but precluding loss at all costs will be even harder and more important. [redacted] emphasized that it will be important to focus on security and surety where it is needed most and will do the most good.

(b)(6) Privacy Act 1974

1.4 (U) POG AUTHORITY, STRUCTURE, CHARTERS, & GROUNDRULES

(b)(6) Privacy Act (U) 1974

[redacted] presented a briefing that reviewed the POG authority, responsibilities, structure, subcommittee draft charters, and ground rules. His briefing is included as Appendix E. An action was assigned to the POG Principals to provide names of members for each subcommittee and working group by 20 May 2005. Another action was assigned each subcommittee and working group to review the draft charters and present revised charters for review and approval at the next POG. ITT was given an action to distribute the USN and USAF MCs and STS by 20 May 2005. Two actions were also assigned to the Requirements Subcommittee: (1) brief the POG on the consolidated requirements at the next POG meeting; and (2) distribute draft RRW MCs/STS that reflect the consolidated requirements within 6-8 weeks. The status should be provided at the next POG.

2.0 (U) NAVY TECHNICAL GROUNDRULES

2.1 (U) MK4A FUZE / AF&F REQUIREMENTS

(S) (U)

[redacted] presented the MK4A AF&F Requirements for RRW. His briefing is attached as Appendix F. [redacted] provided some guidance to SNL to say that they are tasked to identify how to use the MK4A AF&F.

(b)(6) Privacy Act 1974

(b)(6) Privacy Act 1974

[Large redacted block]

1.4(a)  
(e)(g)

Another action was assigned to USAF/XOS to identify the Air Force fuze baseline for the RRW study by the next POG meeting.

# Background



- **Transformation study recommendations**
  - Approve a Joint Project Officer Group to oversee a laboratory design competition for an RRW for the first deployments on SLBMs
  - Direct a design concept competition for a minimum cost W76 risk reduction solution
  - Reduce the planned W76-1 refurbishment
- **NWC approved creation of a Joint Reliable Replacement Warhead Project Officers Group (RRW POG) on 23 March 2005**
- **NWC memorandum dated 11 April 2005 establishes a RRW POG**
  - Oversee a laboratory design competition for an RRW
  - First deployment on SLBM
  - 18 month study
  - Assess technical feasibility, design definition and cost
  - At the conclusion of the study, the RRW POG will present the preferred RRW design options and recommendations to the NWCSSC for approval

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# Terms of Reference (TOR)



- Details membership, organization and conduct of the POG and the RRRW study
- Transformation Coordinating Committee (TCC)
  - Ad hoc group led by DATSD (NM) and NNSA NA-13
  - Members include representatives from OUSD(P)/(FP), The Joint Staff (J-5), USSTRATCOM, Navy (SSP), Air Force (XOS), NNSA NA-11, NNSA NA-12 and DTRA
  - RRRW POG to work in cooperation with and receive advice from the TCC
  - Issues and conflicts within the POG and between the TCC and POG shall be transmitted to the Chairman, NWCSSC for resolution
- NWC will make the final design selection based on
  - POG developed options and recommendations
  - NNSA recommendations
  - User Service recommendations

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# Study Scope

## Reliable Replacement Warhead (RRW)

### ● Feasibility/design definition and cost study

- Laboratory design competition
- First deployment on SLBMs

### ● Considerations:

- FPU ~ 2012
- Compatibility with ICBMs and potential to cancel/replace W78 LEP
- Enable transformation to a responsive infrastructure
- "Lifecycle" review of infrastructure requirements
- Effect on the SLBM force structure and NNSA infrastructure resulting from reduction of the planned W76-1 refurbishment numbers through deployment of RRW

## W76 Risk Reduction Warhead

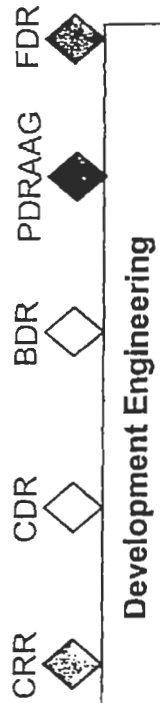
### ● Design Concept study

- Minimum cost W76 replacement as a backup for the RRW (risk reduction measure)
- Laboratory design competition
- FPU ~ 2010

# Notional RRW Schedule



Feasibility/ Cost Study



Production Engineering



- Key**
- CRR – Customer Requirements Review
  - CDR – Conceptual Design Review
  - BDR – Baseline Design Review
  - PDRAAG – Preliminary Design Review and Acceptance Group
  - FDR – Final Design Review
  - FPU – First Production Unit
  - DRAAG – Design Review and Acceptance Group
  - IOC – Initial Operational Capability

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# Ground Rules



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## RRW

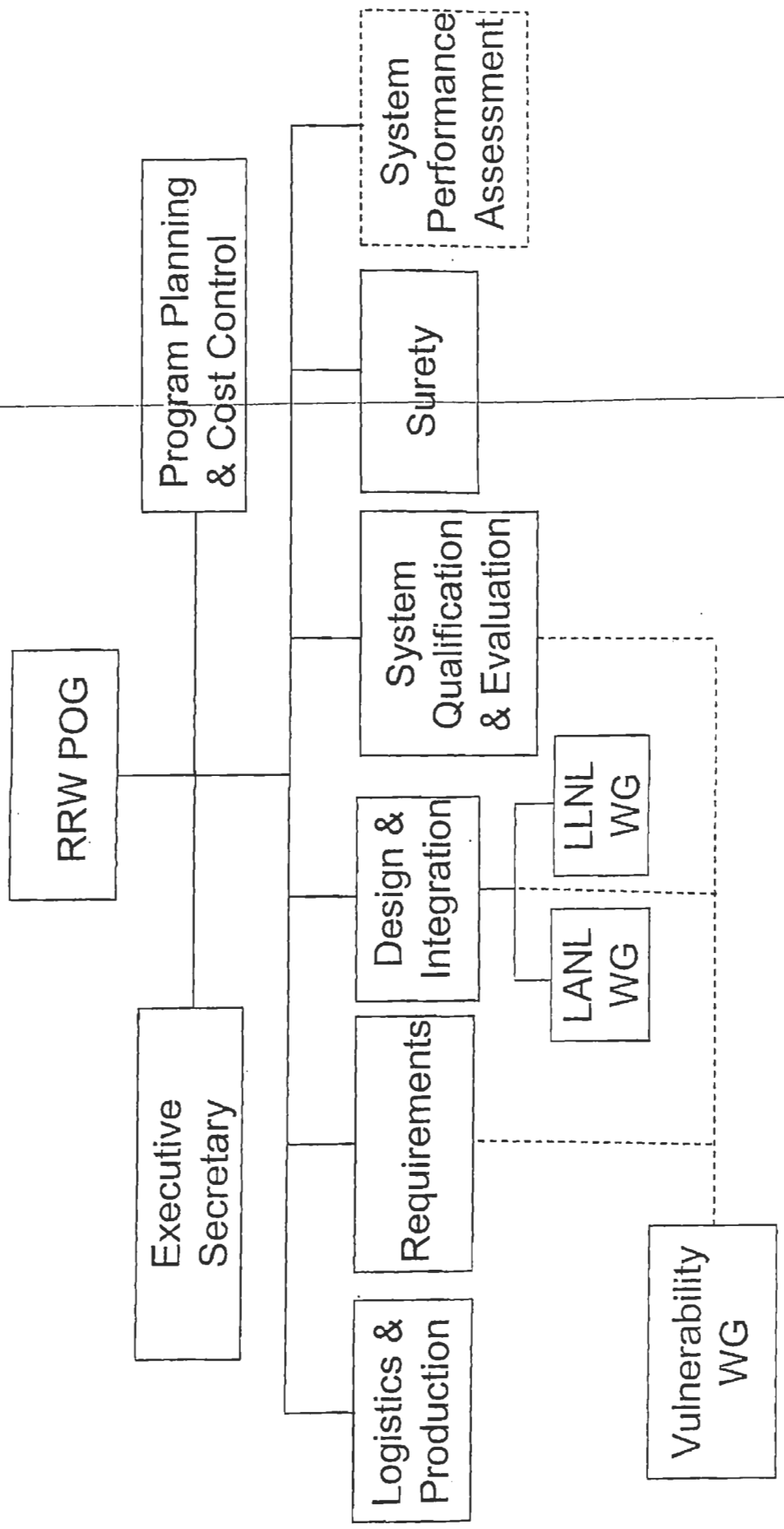
- MK5 aeroshell (SLBM) / MK12A aeroshell (ICBM)
- D5 missile interfaces (SLBM) / MMIII missile interfaces (ICBM)
- MK4A fuze (SLBM) / \_\_\_\_\_ (ICBM)
- Yield - TBD
- Surety
  - Insensitive high explosive
  - Fire resistant pit
  - Surety options (2 versions – shipping container / RBA)
    - Command disable
    - Permissive action link

## W76 Risk Reduction

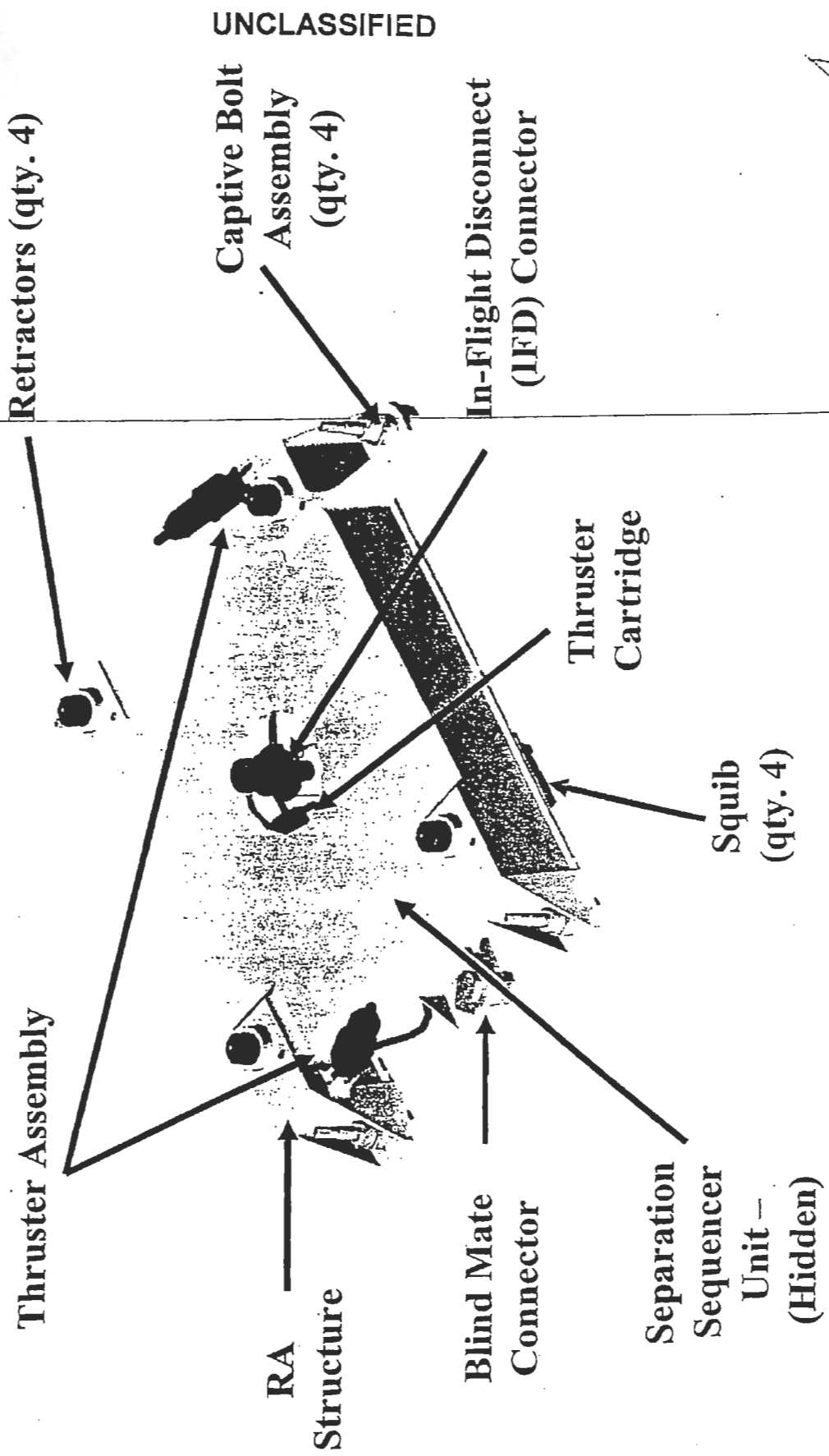
- **Must use existing NEP**



# Notional RRW Organizational Chart



# Mk5 Release Assembly



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# Overview

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- W78/mK12A Characteristics
- W78/Mk12A Military Characteristics
- W78 Military Characteristics and Stockpile-To-Target Sequence
- Environment
- Mk12A Reentry Vehicle System
- Mk12A Dimensions and Mass Properties
- Mk12A Arming and Fuzing System
- System Operations and Schematic
- Environmental Requirements
- Conclusion

H4

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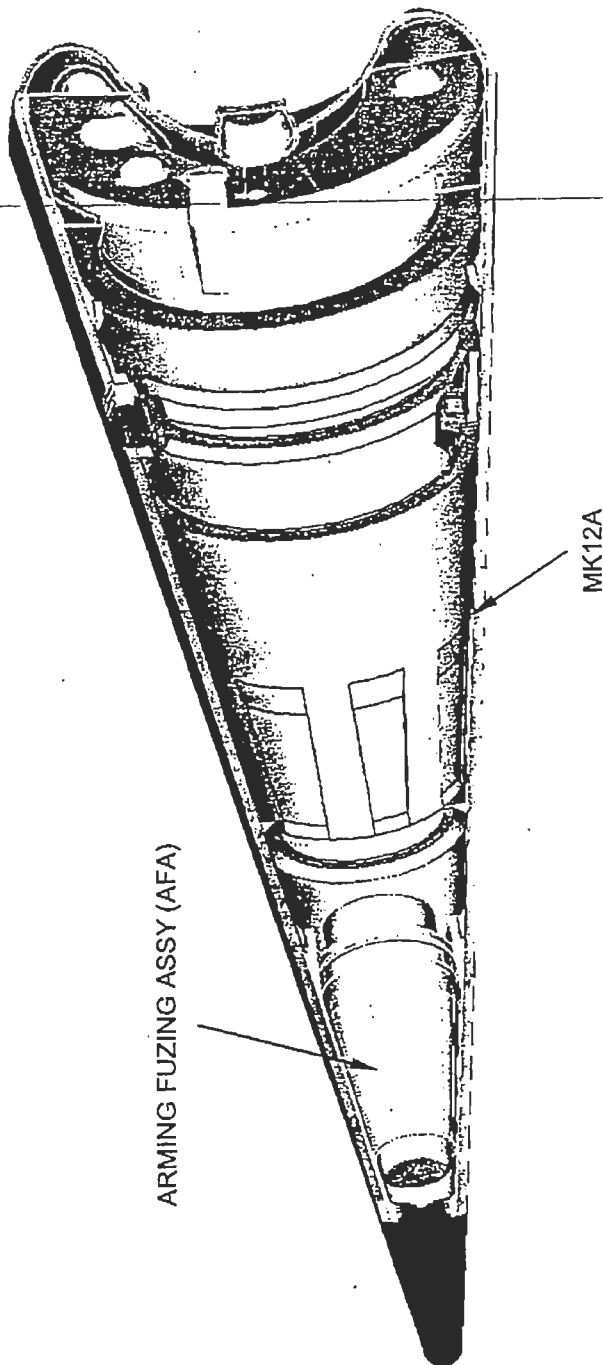
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**Mk12A Arming and Fuzing  
Assembly (U)**



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## Arming and Fuzing System

- High Impulse Transducer (HIT)
- Arming and Fuzing Assembly (AFA)
  - Battery Activation System (BAS)
    - Pressure Activated Valve (PAV)
    - Remotely Activated Battery
  - Command Logic Controller (CLC)
  - Force Balance Integrating Accelerometer (FBIA)
  - Power Conditioner (PC)
  - Radar Fuze Assembly
- Warhead Firing System

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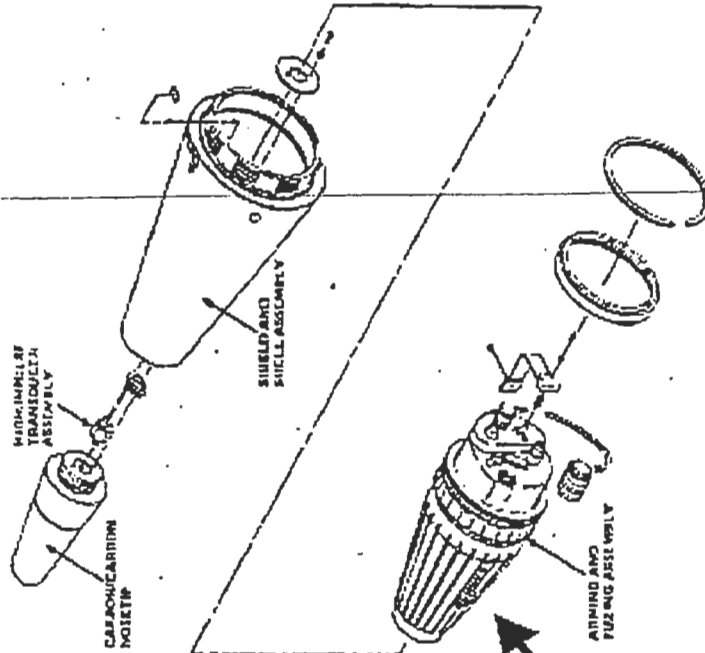
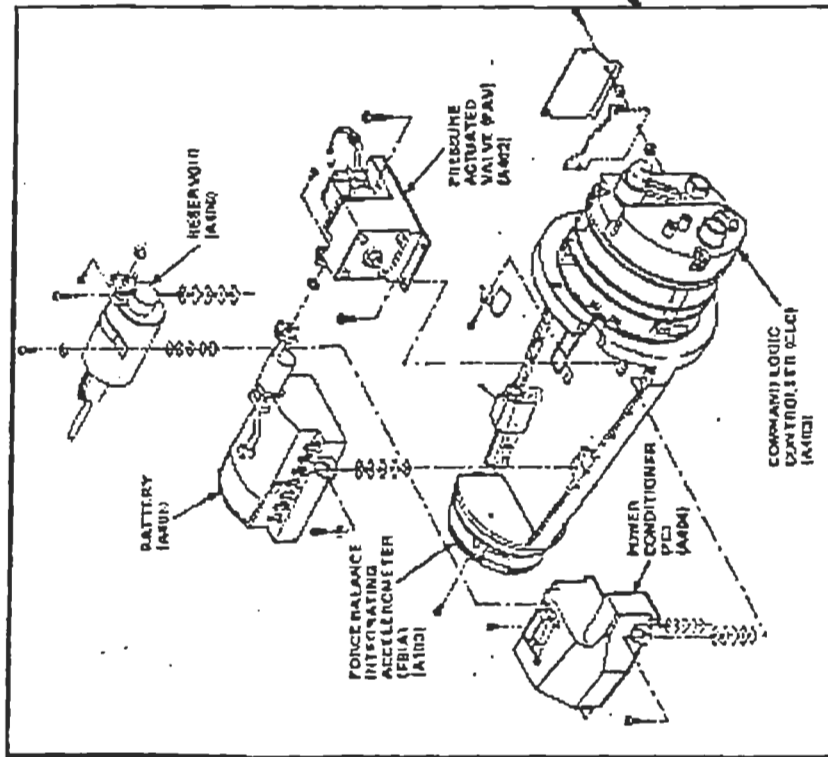
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## RRW is the first opportunity to fundamentally reshape surety implementation in response to the post 9/11 environment

- Advanced weapon surety enables transformation by significantly reducing the possibility of unauthorized nuclear detonation
  - Advanced surety can increase responsiveness by eliminating hazards (NDSE and NBE throughout the life-cycle)
  - Advanced surety enables balanced focus across access denial, containment, and recovery to significantly reduce both risk and life-cycle cost
- Advanced surety can be implemented without significant impact to military capabilities
- Previous experience has convinced us that these technologies can be implemented with minimal risk and without UGT

Excerpt from the RRW TOR:  
"Weapons that are safe and secure by design"





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*Engineered for life*

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